AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph that begins at page 2, line 22, with the following paragraph:

Figure 1 is a cut-away side view of a first embodiment of the present invention.

Please replace the paragraph that begins at page 2, line 24, with the following paragraph:

Figure 2 is an exploded ~~of the present invention~~ view of the embodiment depicted in Fig. 1.

Please replace the paragraph that begins at page 2, line 25, with the following paragraph:

Figure 3 is a fragmentary view of the upper end of the ~~present invention~~ embodiment depicted in Fig. 1.

Please replace the paragraph that begins at page 3, line 5, with the following paragraph:

Figure 14 is a fragmentary cut-away side view of ~~the second~~ a third embodiment of the present invention.

Please replace the paragraph that begins at page 4, line 18, with the following paragraph:

A cylindrical sleeve 18, integral with body [[15]] 13, is disposed in the chamber 14 generally adjacent to the outlet 16 and in axial alignment with the chamber 14. The end of the sleeve 18 adjacent to the outlet 16 is tapered to provide a peripheral edge 20 that projects forwardly in the direction of the outlet 16 at the inside diameter of the sleeve 18.

Please replace the paragraph that begins at page 4, line 25, with the following paragraph:

At the peripheral sleeve edge 20, an evacuation valve member 21 provides closure for the end of the sleeve 18. ~~Valve~~ The evacuation valve member 21 comprises a carrier 22 that is axially slidable in the decreased diameter portion 23 of chamber 14 and is biased to the sleeve closure position shown in Figure 1 by the evacuation ~~valve coil~~ seal spring 24 extending between the

shoulder 25 adjacent to the outlet 16 and the shoulder 19 of <u>a</u> carrier 22. Facing the sleeve 18 and generally centrally thereof, the carrier 22 is provided with a cylindrical resilient sealing block 26. The sealing block 26 is seated in [[the]] <u>a</u> carrier recess 27 and is engaged upon the sleeve edge 20 to effect closure of the sleeve end. The periphery of the carrier 22 is provided with one or more flats 28 as shown in Figure 7, so that the interior of the cylinder sleeve 18 is placed in communication with the outlet 16 when the evacuation valve member 21 is open.

Please replace the paragraph that begins at page 5, line 30, with the following paragraph:

Referring specifically to Figure 3, a fragmentary view of the upper end of the metering device 10 is shown. Another annular shoulder 33 is adjacent to the rear end of the stepped piston 29. The annular shoulder 33 on the piston 29 provides an abutment for the piston return [[coil]] spring 34 disposed between the shoulder 33 and the shoulder 32 formed at the junction of sleeve 18 and [[with]] chamber 14. ~~The end portion 35 of~~ <u>The</u> piston 29 <u>has a drive end portion, which</u> extends rearwardly from the shoulder 33 and is longitudinally slidable along the cylindrical wall of chamber 14. The chamber 14 is described as being cylindrical, but any solid-shaped chamber, such as hexagonal or octagonal, that allows the system to operate is allowable. In this sense, the use of a cylindrical chamber would encompass all such shaped chambers. As shown in Figure 6, the piston <u>drive</u> end portion 35 is provided with one or more flats 36 so that pressure will be equalized on opposite sides of the piston portion.

Please replace the paragraph that begins at page 6, line 29, with the following paragraph:

~~Piston~~ <u>The piston drive</u> end portion 35 defines an inner cavity 38 (see Figure 1 and 3) ~~within~~ <u>in</u> which the check valve assembly 44 is ~~housed~~ <u>seated</u>. The forward face of the check valve assembly 44 carries the projecting resilient cylindrical sealing block 45 mounted in the valve member recess 46. The sealing block 45 is in alignment with and engageable with the passageway 37. Within <u>the</u> inner cavity 38, an annular detent 50 is formed about [[the]] <u>its</u> inner periphery 51. The check valve 44 includes a diametrically disposed passageway 53 extending there through. Detent spring 54 is positioned within the passageway 53. A pair of detent ball members 55 is biased outwardly by the spring 54. The outward pressure exerted upon the ball members 55, in conjunction with the

location of the annular detent 50, defines two distinct positions for the check valve 44: open and closed. Figures 1 and 3 depict the valve 44 in the closed position.

Please replace the paragraph that begins at page 7, line 10, with the following paragraph:

In ~~an alternate~~ a second embodiment 10a shown in ~~Figures~~ Figure 4 and a third embodiment shown in Figure 14, an adjustment device 70, such as a set screw or thumb screw 71, is disposed in a threaded inlet aperture 72 generally central of an inlet 15a in an alternate cap fitting 11a. As shown in the Figures the inlet 15a may be perpendicular to the piston 29 and the chamber 30. In the alternate embodiments 10a,10b, an adjustment stem adapter 73, including a packing nut 74 and o-ring 75, is provided to form a liquid-tight seal about the screw 71 and threaded aperture 72. A retaining clip 76 may also be provided near screw end 77 to prevent the accidental removal of the screw 71. When the screw 71 is fully retracted from the chamber 14, the upper surface 48 of check valve member 44 will have the capability of being biased against the screw end 77 to provide for a piston chamber 30 of maximum length for maximum feeding of liquid medium with each working stroke of the piston 29. As the set screw 71 is turned to project inwardly from the wall 52, the piston chamber 30 will be correspondingly shortened and provide for corresponding feeding of liquid medium with each piston stroke. The amount of feeding ~~by the metering device 10a~~ is not only controlled by the size of the piston chamber 30, but also by the pulsing rate of the pump, not shown.

Please replace the paragraph that begins at page 7, line 34, with the following paragraph:

In the alternate embodiment 10a shown in Figure 4, the detent spring 54 and the detent ball members 55 of the first embodiment are replaced with diametrically opposed leaf spring or leaf springs 154. The leaf spring 154 may be centrally located with respect to the check valve member 44 and the piston chamber 30. The leaf spring 154 is secured to the check valve assembly 44 by a snap ring 156. The ends of the leaf spring 154 located away from the center of the check valve member 44 are nestled into detents 158 located in the piston 29, which limit the range of motion of the check valve member 44. Thus, the leaf spring 154 has a shape and angle that permits the check valve member 44 to move between a fully closed position and a fully opened position (shown in phantom).

Please replace the paragraph that begins at page 8, line 12, with the following paragraph:

As shown in Figure 5, the upper surface 48 of the check valve member 44 is provided with one or more flats 47 to provide for the passage of liquid medium around the valve member. Figure 6 shows the upper surface of the drive end portion 35 of the piston 29 with flats 36. The flats 36 also contribute to an even flow of liquid through the bore 37. When the check valve member 44 is nested within the piston 29 (see Figure 2), the flats 44 are not aligned with the flats 36. Such an arrangement allows liquid flow to continue past the check valve member 44 through the bore 37. Figure 7 shows the upper surface of the carrier 22 with flats 28 and having sealing block 26 centrally located within the carrier 22. Carrier 22 also assists in an even liquid flow through the metering device. The utility of these devices will become more evident as hereinafter further described with reference to Figures 8-13.

Please replace the paragraph that begins at page 8, line 36, with the following paragraph:

Position 2: The check valve 44 is still closed; there is now pressure from the pump forcing the piston 29 downward and onto the sealing block 26. The downward pressure is greater than the resilience of the ~~sealing block~~ evacuation seal spring 24, and sealing block 26 unseats and liquid flows past the sealing block 26. (Figures 9 and 10)

Please replace the paragraph that begins at page 9, line 6, with the following paragraph:

Position 3: The bottom of the piston 29 continues to press down on the sealing block 26 allowing the purge function to occur. The spring force of the piston return spring 34 overcomes the force of the check valve spring 54 and the check valve 44 snaps open. (Figure 11)

Please replace the paragraph that begins at page 9, line 11, with the following paragraph:

Position 4: Once the pressure bleeds off, the piston 29 retracts and the sealing block 26 reseats. The metering chamber 30 refills at top of stroke, and the check valve ~~springs~~ spring 54 snaps the check valve 44 closed. (Figures 12 and 13).

Please replace the paragraph that begins at page 9, line 17, with the following paragraph:

A liquid pressure pulse from a hydraulic pump, not shown, initiates a power or working stroke of the piston 29, as detailed in Figure 8. During the working stroke, initially the piston 29 and the check valve 44 in its closed, forwardly projecting position move together as a unit. Liquid enters through the inlet 15. When the pressure in the piston chamber 30 exceeds the biasing force of the evacuation ~~valve coil~~ seal spring 24, the evacuation valve member 21 opens to allow the liquid medium content in the piston chamber 30 to escape toward and through the outlet 16 (See Figure 9).

Please replace the paragraph that begins at page 10, line 3, with the following paragraph:

As shown in Figure 11, at the termination of the pressure pulse, the evacuation valve 21 is biased to closure again by the ~~sealing block~~ evacuation seal spring 24 as the piston 29 commences its return stroke in response to the lower surface of shoulder 21a of the evacuation valve 21 shouldering on the upper surface 12a of the outlet cap fitting 12. Simultaneously, the combined forces from the shouldering, detent spring 54 and piston return spring 34 cause the check valve 44 to move from its closed position to its open position. (See Figure 12). At the conclusion of the return stroke of piston 29, travel of the check valve 44 is interrupted by engagement of the valve 44 with the end wall 52 (Figure 13) or adjusting screw 71 (Figure 14). At this point, the check valve 44 snaps closed. The piston 29 meanwhile continues aftward to its initial position. The metering device 10 is then ready for the next cycle of operation.

Please replace the paragraph that begins at page 10, line 20, with the following paragraph:

The use of the adjusting screw 71, as shown in Figure 14, allows an operator to increase or decrease the volume of liquid media delivered by the device [[10a]] 10b. The screw 71 may be adjusted to heights that may differ by only a few mils. Such a precise adjustment is advantageous in lubrication systems, where only a few drops of lubricating liquid are necessary for lubrication.

Please replace the paragraph that begins at page 10, line 28, with the following paragraph:

A preferred embodiment of the above process is next discussed in more detail and with reference to figures 8-13, inclusive. When the piston return spring 34 is fully compressed it exerts a force of 4.89 pounds. Using standard spring manufacturing tolerances of +/- 10%, the force could range from 4.40 to 5.38 pounds. The purpose of this spring 34 is to return the piston 29 to top dead center (TDC) (either end wall 52 or screw end 77) after the metering device 10 has dispensed a predetermined amount of liquid. The geometry of the assembly requires 90 to 110 psi of inlet pressure to compress the spring 34.

Please replace the paragraph that begins at page 11, line 4, with the following paragraph:

When the evacuation seal spring 24 is fully compressed in the assembly, it exerts a force of 6.53 pounds. Using standard spring manufacturing tolerances of +/- 10%, the force could range from 5.88 to 7.18 pounds. The purpose of this spring 24 is to create a biasing mechanism for the evacuation seal 26. The geometry of the assembly requires 120 to 147 psi of inlet pressure to compress the spring 24.

Please replace the paragraph that begins at page 12, line 15, with the following paragraph:

Once the piston 29 breaks away from the evacuation seal 26, the remaining upstream pressure is introduced into the pump chamber. At this point, the pressure is acting on the evacuation seal 26, which is biased by the evacuation seal spring 24. The evacuation seal spring 24 force must be enough to keep the seal 26 closed. If not, the upstream liquid could leak through and allow a secondary surge of lubricant to be dispensed from the metering device 10.

Please replace the paragraph that begins at page 12, line 30, with the following paragraph:

The above spring values do not have to be exactly as explained above for the device to operate. The values may be increased or decreased proportionately depending upon the purpose of the meter. However, two very important features with any spring combination must be designed accordingly. First, the evacuation seal spring must have a higher spring force than that of the piston return spring. This prevents the secondary surge of liquid. Second, the piston return spring force as

it approaches TDC must be greater than the check valve spring force. This insures that the check valve will move over the annular detent and ready the meter for its next cycle.